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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,283	05/18/2007	Atsushi Saito	056205.58068US	6950

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CROWELL & MORING LLP  
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EXAMINER
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LUO, DAVID S

ART UNIT	PAPER NUMBER
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2837

MAIL DATE	DELIVERY MODE
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06/03/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/587,283	<b>Applicant(s)</b> SAITO ET AL.	
	<b>Examiner</b> DAVID S. LUO	<b>Art Unit</b> 2837	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01/26/04.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 9-11 is/are rejected.
- 7) ☒ Claim(s) 3-8,12 and 13 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/25/06, 09/22/06, 05/18/07</u> .                            | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1, 2, 9 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,889,516 to Sasaki filed July 24, 2003 and published May 10, 2005
3. As to claim 1, Sasaki teaches a semiconductor device (Sasaki fig. 6:3) including a cooling system for controlling temperature of a refrigerant (Sasaki fig. 6: 7) through a heating section (Sasaki fig. 6: 3) and a radiator (Sasaki fig. 6: 14), said semiconductor device being connected to and cooled by said cooling system (Sasaki fig. 6 where the power converter “3” is connected and cooled by the cooling system “13” water pump, “14” radiator, “1” motor and “7” forced cooling refrigerant flow path), wherein a variation width temperature controlled by said cooling system through said heating section and said radiator is larger than a temperature variation of the refrigerant caused by variations in operating conditions of said semiconductor device (Sasaki fig. 3 and col. 8: lines 52 – col. 9: lines 66).
4. As to claim 2, Sasaki teaches a semiconductor device as claimed in claim 1, further comprising suppression means provided to cover an outer periphery of said semiconductor device and suppressing transmission of heat from an ambient atmosphere to said semiconductor device (Sasaki fig. 6: 5 “fresh air” is used to suppress heat generated by the semiconductor

device “3”, which is the power converter).

5. As to claim 9, Saaki teaches a semiconductor device (Sasaki fig. 6:3) including a cooling system for controlling temperature of a refrigerant (Sasaki fig. 6: 7) through a heating section (Sasaki fig. 6: 3) and a radiator (Sasaki fig. 6: 14), wherein said semiconductor device is connected to said cooling system and generates heat in amount smaller than the amount of heat generated by said heating section (Sasaki fig. 6 where the power converter “3” is connected and cooled by the cooling system “13” water pump, “14” radiator, “1” motor and “7” forced cooling refrigerant flow path).

6. Claims 10, 11 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,664,751 to Gabriel filed June 17, 2002 and published December 16, 2003.

7. As to claim 10, Gabriel teaches a vehicular cooling system (Gabriel fig. 4) installed in a vehicle comprising an internal combustion engine (Gabriel fig. 5: 511) and a motor (Gabriel fig. 5: 531, 532), said motor being controlled by a power conversion unit (Gabriel fig. 5: 534), said vehicular cooling system comprising: a cooling unit for cooling a refrigerant (Gabriel fig. 4: 805, 810); and a circulator for circulating the refrigerant cooled by said cooling unit, said cooling system operating such that the refrigerant cooled by said cooling unit is circulated by said circulator to cool said power conversion unit by the circulated refrigerant, said internal combustion engine or both said internal combustion engine and said motor are cooled by the refrigerant which has been used to cool said power conversion unit, and the refrigerant having been used to cool said internal combustion engine or both said internal combustion engine and said motor is cooled by said cooling unit, said cooling system being constituted such that a variation width of refrigerant temperature controlled through said internal combustion engine

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and said cooling unit is larger than a temperature variation of the refrigerant depending on variations in operating conditions of said power conversion unit (Gabriel fig. 4 and col. 9: lines 34 – col. 11: lines 39).

8. As to claim 11, Gabreil teaches a vehicular power conversion unit (Gabriel fig. 5: 534) mounted in a vehicle comprising an internal combustion engine (Gabriel fig. 5: 511) and a motor (Gabriel fig. 5: 531, 532), said vehicular power conversion unit converting power supplied from a battery (Gabriel fig. 5: 410) and controlling driving of said motor (Gabriel fig. 5: 531, 532), said vehicular power conversion unit being disposed, upstream of the internal combustion engine, in and cooled by a cooling system which cools said internal combustion engine by a refrigerant cooled by a cooling unit, wherein said vehicular power conversion unit (Gabriel fig. 4: 534) comprises: a casing; a cooling channel through which the refrigerant supplied from said cooling system flows (Gabriel fig. 4: 800, 803); a power conversion circuit module (Gabriel fig. 5: 534) made up of a plurality of semiconductor chips and converting the power supplied from said battery (Gabriel fig. 5: 410); and a conversion circuit control board made up of a plurality of electronic components and controlling driving of said semiconductor chips (Gabriel fig. 5: 405, 115, 220, 230) , said casing containing said power conversion circuit module and said conversion circuit control board, said vehicular power conversion unit being able to suppress heat transmission from the exterior such that a temperature variation width of the refrigerant depending on variations in operating conditions of at least said power conversion circuit module is smaller than a variation width of temperature of the refrigerant controlled through said internal combustion engine and said cooling unit (Gabriel fig. 4 and col. 9: lines 34 – col. 11: lines 39).

*Allowable Subject Matter*

9. Claims 3-8, 12-13 are objected to as being dependent upon the rejected base claims 1 and 11, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims.

*Conclusion*

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Luo whose telephone number is (571)270-5251. The examiner can normally be reached on M-F 9AM-6PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571)272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David Luo  
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/Lincoln Donovan/

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Supervisory Patent Examiner, Art Unit 2837